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ON MEDICAL EDUCATION.

BY R. T. KENT, M.A. (OXON.), F.R.C.S., F.F.P.S.G.,
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3 Minard Terrace

Parlisk Hill

Glasgow.

Oct. 20th 1894

Dear Sir

After reading the report of
your Bonteian Lecture in the
"Lancet" I have ventured to send
you a copy of my Introductory
Address to the students of St Mungos
College last year. My remarks on
the Preliminary Education of Medical

Students are almost identical with
your own, but I was disappointed that
you said nothing about the necessity
of fixing a limit of age for entrance
into the Profession. I believe that
the Five Years Curriculum has had
the effect of bringing Men (?) into
the Profession at least a year earlier
than was formerly the case and I
imagine that if the curriculum were
prolonged to Ten Years students would
then enter at the average age of
seven years. I will not however

trouble you by discussing this subject
I should have spoken far more strongly
on it in my address had I dared
but I had to consider my audience

I am.

Yours faithfully

Robert Thor Keel.

Dear Prof of Anatomy.

St. Mungo's Coll. Glasgow

ON MEDICAL EDUCATION.*

By R. T. KENT, M.A. (Oxon.), F.R.C.S., F.F.P.S.G.,
Professor of Anatomy, St. Mungo's College, Glasgow.

GENTLEMEN,—It has fallen to my lot this year to deliver the usual introductory address before you here in St. Mungo's. And in accepting this charge, I feel that I have undertaken what to me is a most difficult task—difficult from two causes. In the first place, my connection with this school has hitherto been an exceedingly brief one, so that I have hardly as yet had time to become myself an integral part of its constitution. I feel like a graft that has not yet had time to grow. In the second place, so young a medical school as our College is can hardly as yet be said to have any history. Our calendar informs us that the Glasgow Royal Infirmary Medical School was first opened in the year 1876, and we have, therefore, not as yet attained our majority, though there are doubtless many and unmistakeable signs that we are fast approaching to years of discretion.

Now, gentlemen, in an introductory address under such circumstances as these, the lecturer is deprived of one fertile resource for the exercise of his fluency which at an old-established school he is enabled to draw upon to an almost unlimited extent—I mean that he is unable to go back into the past, and to bring forward a long roll of names of former medical and surgical celebrities who, in days gone by, have brought honour and reputation to their school, and after pointing many a moral, by anecdotes of these worthies, to conclude with an adjuration to the younger members of his audience, "Go ye and do likewise." But this very youthfulness of our College, this want of history, is, I think, by no means a disadvantage to the present members of our Society. At all events, gentlemen, we here are not eclipsed or overshadowed by any names so great that our courage need fail at any thought of emulation, and it is open, therefore, to each

* Address to the Students of Medicine of St. Mungo's College, Glasgow, 18th October, 1893.

one to make at the same time a name for himself and a reputation for his college.

That there are some here who will do so I feel certain, and I trust that before long the useful work done by this school in its connection with the Royal Infirmary—an institution which, I need hardly remind you, was the birthplace of modern aseptic surgery—will be more widely recognised and better appreciated by the wealthy and munificently disposed in this great city. Glasgow may, like Edinburgh, be proud of her University, but Glasgow should also be proud, as Edinburgh is, of her extra-mural schools.

It can, perhaps, be hardly too strongly insisted upon, that the existence of this school is of the utmost value to the Royal Infirmary, and that without the school the Infirmary would be very seriously and permanently crippled in the charitable and noble work which it is performing in a densely populated district. It is hardly necessary here for me to explain the close connection which exists between our college and one of the largest hospitals in the kingdom, and how the welfare of the latter is dependent in a great measure upon the success of the former, but I would refer those who are anxious to know more of this subject to the history of St. Mungo's given in our college calendar.

Now, gentlemen, in an address to medical students such as this professes to be, it may not perhaps be out of place if I attempt to discuss one or two of the many vexed questions connected with the subject of medical education. As teachers, we have to bow before the wisdom of that august body, the General Council of Medical Education, and to accept without murmur whatever changes they may be pleased to decree in the curriculum.

You are aware, of course, that a great alteration in the length of that curriculum has lately been made, and that, instead of four years, a five years' course of study is now compulsory upon all students before obtaining a qualification to practise. The effects of this change have been evident in a general decrease in the number of entries at the various medical schools throughout the country, and it is unfortunate, for us teachers at any rate, that such a change, accompanied as it has been by a more or less general rise of fees, should have been introduced during a period of great commercial depression.

But, as I hinted just now, medical schools do not exist merely for the benefit of their teachers, and there can be no

doubt that the additional year's study will be to the advantage of the student as well as to that of the general public, who will hereafter entrust their health and their lives to his care. Now, whilst I fully approve, under existing circumstances, of the extension of the curriculum to five years, I think it would have been well if at the same time so great a change was introduced, more stringent regulations had been laid down as to the manner in which those five years should be spent. Thus, while allowing five years to be the minimum time in which it should be possible to obtain a diploma, I would have imposed also a certain time to elapse before each examination, such time to be occupied exclusively in preparation for that examination and for no other. By these means I would make sure that a proper time had been spent in the preparation of each subject, and would thus put a stop in a great measure to that dangerous "spurting" by the aid of cramming during the last year or two of the curriculum to make up for lost time.

A student's career should resemble that of a well regulated train, calling at every station at its appointed time, not rushing up two or three hours late at the last stopping place, and then hurrying off at a headlong and dangerous speed with the steam roaring at the safety valve, to reach the terminus at the hour when the journey ought to be completed.

And talking of limitations of time for examinations brings me to the subject which I had in my mind when I proposed to discuss one or two points connected with the education of medical students, and I cannot help thinking that some still further limitation is urgently needed, such that it should be impossible for a student to enter the profession until a certain age has been attained.

Now, a short time ago a writer in one of the medical journals, himself a teacher in one of our universities, complained bitterly of the low standard of general education amongst medical students. His letter led to some discussion on the subject, and the blame was finally placed, if I remember rightly, not on the universities, not on the General Medical Council, not on the various bodies who undertake the examination in arts of medical students, but if you please, upon the English public schools.

This, I would submit, is placing the saddle entirely upon the wrong horse, since, in the first place, comparatively few of the great bulk of medical students are drawn, even in England, from the public schools; and, in the second, place if this were not so, owing to there being no regulation as to the age at

which students can enter the profession, a great many have already completed the major part of their curriculum at an age when they would still be deriving benefit from the discipline of a public school. The fact that cases are continually occurring of a student having passed his final examination, but being unable to obtain his diploma on account of his being under legal age, illustrates my case. Such an one, even under the four years' curriculum, must have entered the profession and commenced the unrestricted life of a medical student; in other words, must have become his own master at far too early an age.

It has, indeed, long been a wonder to me that so many parents are willing to send their sons, while yet so young, to a medical school, and to allow them to live with no restriction or supervision, exposed to the temptations of a large city. And yet teachers are found who complain of the low standard of general education. Can this low standard be wondered at? On the contrary, it would be a very great wonder if it did not exist.

Can any one pretend that a lad of 16 or 17 years of age who is leaving school, and perhaps not from a very high class in that school, has received such a liberal education as will qualify him for entrance into one of the so-called learned professions? In some cases, no doubt, he leaves school at even a more tender age, and passes a year or so in the hands of some reverend examiner, and by him is duly examined through one of the preliminary examinations, and this constitutes his liberal education!

"How," you will ask, "can such a state of affairs be remedied?" Certainly not by any mere raising of the standard in the entrance examinations. The simple fact of having passed an examination in Arts, however difficult, is not in itself any evidence of having received a liberal education, and to merely raise the standard of such examinations would be to play into the hands of the examiners. It is not merely the possession of a certain amount of knowledge in such subjects as classics, mathematics, history, &c., which will properly equip a student for his professional work; it is the training he has undergone in acquiring this knowledge in a proper way, and not in having it crammed into him in a few months, which constitutes a liberal education, and is likely to be of value to him in after life. Perhaps it would be as well to define here more accurately what is meant by a liberal education. I will quote, therefore, the words of one of the

deepest thinkers of the century on this subject:—"That process of training by which the intellect, instead of being formed or sacrificed to some particular or accidental purpose, is disciplined for its own sake for the perception of its own proper object, and for its own highest culture, is called a liberal education." Now, such an education, such a process of training, can never be ensured by the mere passing of an examination. Surely it is somewhat anomalous that all the examining bodies who grant licences to practise should lay down more or less stringent regulations as to the course of professional study which must have been pursued, while they allow the greatest possible latitude as to the manner in which the general education of their candidates shall have been conducted. Thus, we find that so many months must have been spent in attendance upon anatomy lectures, so many on physiology, &c., &c., and yet the preliminary education so important in itself may have been acquired anyhow, so long as a certain examination has been passed, and you are, all of you, familiar with that long list of examinations which are recognised as qualifying examinations in Arts.

Now, this is scarcely consistent! The examining bodies, in laying down these regulations, have decreed that it is not sufficient for a student, when he comes up to be examined, to exhibit a certain amount of knowledge, but they require, in addition, certificates as to how that knowledge has been gained. They require him to be "signed up," as the expression goes, for attendance upon a certain number of lectures, and for a certain amount of practical work performed under the superintendence of a recognised teacher. In other words, they try to ensure, as far as possible, that in his professional education the student shall have undergone a certain process of training, but as regards the general education of their candidates, they are content to let the matter be settled by the mere passing of any one out of a long list of examinations.

Now, I am certain that every one who has been brought much into contact with medical students, will agree with me that there is the widest possible variation in their attainments as far as general knowledge is concerned, and that the present state of affairs with regard to their preliminary education is eminently unsatisfactory. But it is an exceedingly difficult problem to solve to say how matters could be improved. The first step would, I think, be the fixing of an age limit, and it would be very easy to insist that evidence of having attained a certain age should be produced when first register-

ing as a medical student. What that age should be I would not venture to suggest, but I think there is much to be said in favour of its being advanced considerably beyond the present average. It would no doubt be of great advantage, both to the students themselves and to that of the medical profession generally, if the only entrance to the profession were a degree in arts from a recognised university. But such a regulation as this might perhaps be too severe, and might be held to entail somewhat of a hardship.

Could we, then, without going quite so far as this, ensure that every student, before commencing his professional studies, shall, in addition to merely passing an examination, have undergone a more or less definite training in arts? I think that this might be possible. We may divide the whole community of medical students into two classes—Firstly, those who, at the outset of their career, have become members of an university with a view to becoming possessors of that much coveted degree, M.D.; secondly, those who are only working for the licence, and to whom a degree, whether in arts or in medicine, is either no desideratum, or else is quite beyond their power to obtain. This latter class is more numerous in London than here in Scotland, where the facilities for obtaining a degree in medicine are more numerous, and the regulations less exacting. Now, with regard to the former class—namely, those who at the outset of their career have become members of an university, I do not think any hardship would be entailed had they been compelled to go through that course of training which qualifies for a degree in arts of their university, before commencing their medical studies. In other words, I would make a degree in arts compulsory upon all candidates for a degree in medicine or surgery, and I would undertake to say that under such circumstances there would not be one medical graduate of five years standing out of a hundred who would, upon looking back, consider that the time spent over his arts course had necessarily been wasted.

But with my second class of students, who are not members of any university, the problem is much more complicated.

We cannot, as I say, compel them to go to the universities for their general education, and at the same time we are not justified in assuming, because they can produce evidence of having passed a certain examination, that their preliminary education has been such as is desirable for members of a learned profession.

There only remains, then, it appears to me, one possible alternative, and that is to approximate, as far as possible, the preliminary training of intending medical students to that required for the arts degree of some university. Thus, in place of one examination, to substitute several, and to ensure that a certain time shall elapse after one examination has been passed before admission to the succeeding one; to require evidence not only of having passed examinations, but of having undergone a certain definite course of training; and, at the same time, I am of opinion that greater inducements should be held out to students to more thoroughly prepare themselves for their professional training by undergoing a course of instruction in arts at an university.

I am aware that some concession is already made to graduates in arts and science, who shall have spent a year in the study of physics, chemistry, and biology, and shall have passed an examination in these subjects, by allowing them to count one year of medical study; but such a meagre concession as this is not likely to have much effect in drawing students to the universities, and no doubt it is not intended that it should. In London, you know the great bulk of medical students labour under the disadvantage of having no university available which will grant them degrees upon similar terms to those on which these are obtainable from the Scottish or Irish Universities; and to remedy this, it has been proposed to create what I may call a skeleton university, which shall grant degrees to this large body of students without materially altering that course of study which now qualifies for the licence. In other words, because the students at the outset of their career have not gone to the universities, a new university is to be created and brought to the students. Now, I cannot think that they who are advocating this scheme are doing so from entirely disinterested motives.

The value of an university degree has generally been considered to depend upon the fact that it entails a certain period of residence, a certain course of instruction and discipline. We must, of course, make an exception—that exception perhaps which proves the rule, in the case of the University of London, the value of whose degrees rests solely upon the high standard of the examinations. But in this proposed university neither was the standard of the examinations to be so high as that of the present London University, nor was any discipline or training to be required further than is already necessary for the licence.

I am strongly of opinion that if greater inducements were held out to medical students to go in for an arts degree at one of the numerous existing universities, and if, at the same time, the course of preliminary instruction for those who are not members of an university were more closely approximated to that required for such a degree, the demand for new universities would very soon cease to exist, or, at all events, would be very considerably diminished.

The objection, moreover, which is sometimes urged that the older English universities require an expensive residence to qualify for their degrees has really ceased to have any weight, since the institution of what are now known, both at Oxford and at Cambridge, as unattached students.

There are some here no doubt who will be inclined to think that I am placing too much stress on the value of a liberal education to a medical practitioner. "Of what use is it," they will say, "to us to have spent so many years in the study of classics, mathematics, philosophy, &c., if we cannot make use of them in our professional work? All the classics in the world will not teach us how to set a fracture, nor all the mathematics how to treat a case of typhoid."

But they forget that the medical practitioner has other than merely professional duties to perform, that he is brought into contact with members of other professions, that he becomes their friend, and very often their confidant; and that it is to his advantage to become not only a skilful practitioner, but a wise and useful citizen.

That man who has received but little education beyond his professional training, no matter how clever he may be, no matter how successful in his treatment, is in great danger of becoming merely what I may describe as an automatic guinea-in-the-slot machine for the cure of diseases.

"I have read," says Sir William Dalby, in Dr. Chesterton's letters to his son, "many charmingly written articles and books on surgical matters; but I have also, for my sins, waded through some others that have positively made me shudder. For lumbering, blundering sentences; for hideous grammatical errors; for long paragraphs, whose construction almost makes one giddy; for the jumbling together of a number of Latinised words, and a complete absence of pure English, commend me to the effusions of an illiterate surgeon."

Leaving now, gentlemen, the question of general education, let us turn to the consideration of a point in what perhaps

more nearly concerns us—the scientific education of medical students—and we will confine ourselves to considering the teaching of anatomy. Now, there is a subject taught in all medical schools which, on this side of the Tweed, has been dignified by the title “institutes of medicine.” In the south they are content to use the simpler name “physiology.” I much prefer the former title, since there can be no doubt that the essential basis of modern medicine is founded upon a sound knowledge of physiology.

But, as it is impossible to be a good scientific physician without a very considerable acquaintance with physiological principles, so it is equally impossible for a man to become a sound and trustworthy surgeon unless he have at his fingers’ ends a very accurate knowledge, not of what is now taught in the schools under the name of anatomy, but of a particular kind or branch of that science to which I would like to give the name “institutes of surgery.”

Now, why is it that at the final examinations so many men come to grief over what is known as surgical anatomy? They have spent one, two, or even three years in attendance upon anatomy lectures, and upon classes in the dissecting room, and what, I would ask, is all their anatomy worth if it is not surgical? The time so spent can hardly be considered as being very productive. Now, in the early part of this century, when the University of Oxford began to wake up from a long period of neglect, and to form plans for the education of the rising generation of that period, a sharp controversy took place between the leading men in the educational world of Edinburgh on the one hand, and those of Oxford on the other. In the north they were all for utility in learning. They held that education and instruction should be made “useful,” and that no knowledge was worth having if it were not directed to some particular end or object. Now, let us see how far this doctrine has been applied to the teaching of anatomy. Either, following the Oxford view that knowledge is valuable for its own sake, and, as a process of training, we must consider that the discipline and training involved in learning anatomy have their own intrinsic value, or else we are driven to the conclusion that the only end and object of anatomy is to form a basis upon which to ground a sound knowledge of surgical principles.

Now, I do not imagine that even the most enthusiastic anatomist would ever dream of proposing that the study of anatomy should form part of the education of those who are

destined to become advocates, ministers or commercial men. In other words, would consider that the study of anatomy has any appreciable value as a process of training.

If, indeed, it were possible that every student could be made a scientific anatomist, the training necessary for such an attainment might not be without its value. But this is absolutely out of the question.

The time at the disposal of an ordinary medical student is far too short to allow him to obtain anything more than the merest insight into what may be called scientific anatomy—and by scientific anatomy I mean a knowledge not only of the human body, but of the anatomy of the whole animal kingdom of development and morphology. Such a training, to be of any value, would occupy more time than the whole of even the five years' curriculum. Consequently, as anatomy cannot be held to form part of a medical student's education on account of any mere value it may possess as a process of training, we must conclude that it is intended to afford him such a knowledge of the human body as will assist him to comprehend and appreciate the origin and course of surgical diseases, and the why and wherefore of modern surgical methods of treatment.

Now, is this the case? Is anatomy such as is now taught in our dissecting rooms, and such as is now required by the examining boards, of this nature? I think not. I imagine you will agree with me when I say it is the rarest possible thing to hear a fact in anatomy dwelt upon in the dissecting room on account of its surgical importance, whilst on the contrary many of the "catchy" little bits of anatomy, if I may be allowed the expression, which are so often insisted upon have no surgical meaning whatever. And the same is the case with the examinations. Much of the knowledge a candidate is expected to show is such as can have no connection with surgery, at all events in the present state of that science, and such as he may forget with the greatest advantage the moment he has passed his examination, and such as he will never need to recall throughout the whole of his professional career, yea, even if he become the greatest surgeon and operator the world ever saw. And in the majority of cases he does forget it with the most marvellous celerity! But he forgets also what little he has learned which is of importance. The huge bolus of undigested anatomical facts acquired by the student when preparing for his primary examinations is far too unwieldy a mass ever to become properly assimilated, and to form part, as it were, of

his daily life. Having no knowledge of surgery at the outset, he has never learned to separate the wheat from the chaff. He has never had pointed out to him the surgical bearing of anything he has learned, and if he be a man of an enquiring turn of mind, and devoted to work, he is prone to give far more attention to such minutiae as the communications of the sympathetic at the base of the skull or the exact distribution of the petrosal nerves, than to the position of the interphalangeal joints in the hand, or the precise situation of the femoral artery in the thigh.

I have myself had, perhaps, more than usual facilities for estimating the anatomical knowledge of students preparing for examinations in surgery, and I have almost invariably found that the facts they remembered best were such as are of but slight surgical importance, if any. Now, in many schools anatomy is taught by scientific anatomists who, I will not go so far as to say are entirely ignorant of surgery, but who, I am quite safe in asserting, care little or nothing about it.

They love their science, and would make the best possible teachers if the students under them were destined to become scientific anatomists like themselves, but for one student who is so destined, nine hundred and ninety-nine are intended to become medical and surgical practitioners; and to such, I would submit, anatomy should be taught mainly from a surgical point of view. Every sailor in our mercantile marine who is a candidate for a Board of Trade certificate as master or mate is required to exhibit sufficient knowledge of nautical astronomy to enable him to ascertain the position of his ship when at sea, by an observation of the sun at noon or of a star by night.

But it would be absurd to insist that such men should have been taught their little bit of astronomical science by skilled astronomers from an observatory, or that they should have undergone such a course of instruction as should enable them to compute the orbit of a comet, or to take observations with a transit instrument. Would you depute an Edison or a Kelvin to teach the single needle code to a lot of telegraph clerks?

And so it is with the examinations. As I said just now, a vast amount of anatomical knowledge is insisted upon by examiners which is utterly useless to the candidate, and it is this fact that has fostered the system of cramming.

I am strongly of opinion, gentlemen, that, having regard

to the rapidly increasing amount of knowledge which it is absolutely necessary that a student must acquire, a little local blood-letting in other directions will soon be needful, and that it is high time that the character of our examinations be considerably altered.

And so I would suggest, among other alterations, that the anatomical problems which are put to candidates shall have more bearing than is now the case upon the science of surgery. Should this ever come to pass, as I sincerely hope it may, then will anatomy truly become what, in my humble opinion, it ought to be—namely, the institutes of surgery, and the labours of the student will not only be lightened, but will be made more useful and more entertaining.

The almost daily additions made to our knowledge in medical and surgical science, our wider knowledge of disease, our numerous methods of treatment, are adding continually to the huge mass of information awaiting the future student.

The receptive capability of the average human mind still maintains its limits, and unless the curriculum is to be indefinitely prolonged, the pruning-knife will have to be applied somewhere.

I have here attempted to indicate one direction in which the said knife might be applied, one branch of which, I think, might with advantage be lopped off. Others will no doubt occur to my hearers. It is out of my province to attempt to discuss such a subject, for instance, as the teaching of *materia medica*, but I have a strong suspicion that here, too, a useless burthen is imposed upon the students' memory.

It may not be out of place here to call attention to the fact that in many cases the attainment of a qualification by no means enables the student to commence his professional life. If he aspire to the services, further examinations are before him; if he wish for a public health appointment, the additional necessary qualification will have to be obtained.

The conditions of our modern social life will not admit of the period of apprenticeship being prolonged much beyond early manhood. Every year, therefore, added to the curriculum means an earlier entrance into the profession—a year lost to the general education—another fee into the pockets of the crammers.

And now, gentlemen, after what I have just said, it may be as well to utter a word of warning to the younger members of my audience. While I am no enthusiast revelling in the multiplication of dry anatomical facts, splitting up ligaments

by the application of fantastic terms to scarcely distinguishable parts, or ruthlessly inventing new names in the places of those already grey with age, it is far from my wish to depreciate in any way the value of anatomy when considered as the handmaid of surgery. Without anatomical knowledge the man who would undertake to remove a tumour, to reduce a dislocation, or to perform the simplest surgical operation, is not one whit superior, in spite of all his qualifications, to the veriest bone-setter who, by a lucky wrench, chances to force a bone into position, perhaps after the most skilful performers have tried in vain.

In conclusion, it remains for me to congratulate those who are to-day commencing their medical education in this college, upon their choice of a school. They will here enjoy advantages which, I will undertake to say, are not equalled by any other medical school in the kingdom. On the one hand, their school is a young one, and the number of students as yet comparatively small, so there is no overcrowding. On the other hand, their hospital is one of the largest in the country, and the supply of clinical material provided is practically inexhaustible.

I would impress upon them that their object should be not merely to acquire sufficient knowledge to enable them to obtain whatever degrees or diplomas they aim at; not merely to get qualified, but to learn how to become their own teachers; to learn to observe for themselves, so that, in one sense, they may remain students all the rest of their lives. And this habit of independence, this power of teaching one's self, can nowhere be so easily acquired as in the wards of a hospital. There is a tendency at the present day, I am afraid, amongst students to depend too much upon their teachers; to accept what they say as gospel; to learn nothing but what their lecturers tell them; and to make no attempt to verify statements or to observe for themselves.

And perhaps, in the keen competition between different schools to attract students, the teachers themselves are responsible to a certain extent for this tendency. The desire to show a brilliant pass-list from their school, to diminish the percentage of rejections, has developed in many cases a series of compulsory tutorial and other classes which approach dangerously near to a system of cramming, and which, though they may be to the advantage of the school, are of very questionable benefit to the student. That this system enables him to pass his examinations is no doubt the case, but that

it develops a proper habit of independent observation, a facility for teaching himself is, I think, very dubious; and so I would say to those who are here to-day commencing their career—"Learn to observe, to think for yourselves; take nothing for granted that you have any opportunity of verifying; become as far as possible your own teachers."

And for this end there awaits you in the hospital an unsurpassed feast of clinical material. Gentlemen, don't wait to be asked what you will take. Help yourselves!







